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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,794	04/08/2005	Francis Thomas Boyle	100864-1P US	4278
44992 7590 10/17/2008 ASTRAZENECA R&D BOSTON 35 GATEHOUSE DRIVE WALTHAM, MA 02451-1215				
EXAMINER SZNAIDMAN, MARCOS L				
ART UNIT		PAPER NUMBER		
1612				
MAIL DATE		DELIVERY MODE		
10/17/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/530,794

Applicant(s)

BOYLE ET AL.

Examiner

MARCOS SZNAIDMAN

Art Unit

1612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7, 10 and 12-24 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 10, 13-19 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date 2 pages / 04/25/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to applicant's reply filed on May 16, 2008.

Supplemental IDS

The supplemental IDS dated January 11, 2008 and April 25 2008 were both signed, dated and there is also a statement at the bottom that says: "all references considered except where lined through" and then followed by the initials of the examiner. This is the equivalent of initializing each reference.

Status of claims

Claims 1-4, 6-7, 10 and 12-24 are pending and are the subject of this office action.

Claims 12 and 20 were withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions/species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 24, 2007. Species elected: ZD4054 as the endothelin receptor antagonist, ZD1839 as the EGFR TKI, and lung cancer as the type of cancer.

Claims 1-4, 6-7, 10, 13-19 and 21-24 are presently under examination.

Priority

The present application claims priority to application No. PCT/GB03/04347 filed 10/07/2003, which claims priority to foreign application No. UNITED KINGDOM 0223854.1 filed on 10/12/2002.

Response to Arguments

This is in response to applicant's arguments, filed on May 16, 2008.

Claims rejected under 35 USC 112, first paragraph (enablement).

Applicant's arguments have been fully considered but they are not persuasive.

Applicant argues that Rosano et. al. (Cancer Research (2007) 67:6351-6359, cited by applicant in last office action) provides enablement for the instant application. The Rosano publication teaches the treatment of ovarian cancer with a combination of ZD4054 (an endothelin receptor antagonist) and ZD1839 (an EGFR TK inhibitor). Rosano et. al. also teaches and provides a rationale for combining an EGFR TK inhibitor with an Endothelin-A receptor antagonist. Applicant further argues that although Rosano et. al. only disclose ovarian cancer cell lines, they demonstrate the existence of cross talk between EGFR and the endothelin-A receptors. Applicant's conclusion is that this fundamental signaling mechanism would also be expected to be present in other tumors that express both of these receptors. Although this last statement might be true, it is merely an invitation for starting a new research project. Applicant does not present any facts that the above combination can treat lung cancer;

there is no experimental data at all in the specification that will suggest that this combination could effectively treat lung cancer. Applicant is merely extrapolating that because the same receptors and kinases are present in both ovarian and lung cancer, the same treatment will be effective in both. Unfortunately cancer is a very complicated disease in which a plethora of factors converge, so to narrow it down to the presence of a receptor and a kinase is oversimplifying a complex process. As mentioned above, applicant has presented an idea to be further explored: treating lung cancer or any cancer that expresses both EGFR and endothelin-A receptors with ZD4054 (an endothelin receptor antagonist) and ZD1839 (an EGFR TK inhibitor), but as of the present time has no evidence at all that it might work, and ideas, no matter how reasonable and good they are, are not patentable.

Rejection under 35 USC 112, first paragraph (enablement) is maintained.

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 6-7, 10, 13-19 and 21-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This is an enablement rejection.

Claims 1-4, 6-7, 10, 13-19 and 21-24 recite a composition and a method for treating lung cancer in a warm-blooded animal, such as man, in need of such treatment, which comprises administering to said animal an effective amount of the combination of an endothelin receptor antagonist (ZD4054), and a EGFR TKI (ZD1839). However the specification fails to disclose any data to support the fact that using this particular combination (or any combination) will result in an effective treatment of lung cancer. There is only experimental data that demonstrates the involvement of MAPK in both ET-1 and EGF osteoblastic signaling pathways (see specification, pages 15 and 16), but no data *in vivo* or *in vitro* to support the claim that this particular combination could result in an effective treatment of lung cancer. There is also no evidence in the prior art that a combination of any endothelin antagonist in combination with an EGFR TK inhibitor will result in the effective treatment of lung cancer. To the contrary, the prior art (see Doubt et. al. Nature, (1996), 379:557-560, cited by applicant) suggests that : more details of this RTK transactivation mechanism (with endothelin receptor) are needed to clarify its role in the regulation of biological processes and the pathophysiology of diseases such

as cancer (see last sentence on page 560). There is no data in the present application that helps clarify this issue, at least regarding the treatment of lung cancer.

In the absence of any examples in the instant application, the unpredictability of the art of treating cancer, and in the absence of prior art suggesting that any combination of an endothelin receptor antagonist and a EGFR TKI might be effective in treating lung cancer, one skilled in the art could not use the invention of claims 1-4, 6-7, 10, 13-19 and 21-24, without undue experimentation.

Conclusion

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCOS SZNAIDMAN whose telephone number is (571)270-3498. The examiner can normally be reached on Monday through Thursday 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached on 571 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARCOS SZNAIDMAN/
Examiner, Art Unit 1612
October 7, 2008, 2008

/Frederick Krass/

Supervisory Patent Examiner, Art Unit 1612